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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/730,761	12/08/2003	Sompong P. Olarig	200301801-2	3449

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EXAMINER	
NGUYEN, HIEP T	
ART UNIT	PAPER NUMBER
2187	

DATE MAILED: 07/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary	Application No.	Applicant(s)	
	10/730,761	OLARIG ET AL.	
	Examiner	Art Unit	
	Hiep T Nguyen	2187	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *12/08/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is a response to the communications filed December 8, 2003. Claims 1-18 are presented for examination.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

   a. a patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blumrich, U.S. Patent No. 6,493,800 in view of Shih et al., U.S. patent No. 5,293,609 [hereafter, Shih] or Arlitt et al., U.S. Patent No. 6,272,598 and further in view of a well-known feature.

   a. <u>As per claim 1:</u>

      i. Blumrich teaches, in his second embodiment, a method of cache partitioning, comprising the steps of:

         1. Partitioning a cache [figure 7] into a plurality of cache partitions; and
         2. Assigning a first cache partition of a plurality of cache partitions as a private cache for a first entity [figure 8, col. 8, lines 40-49].
         3. assigning a second cache partition of the plurality of cache partitions as a private cache for a second entity [see again figure, col. 8, lines 40-49]

      ii. Blumrich, however, does not teach a step of reallocating a size of the first cache partition if the characteristic of the first cache partition crosses

an upper threshold and the characteristic of the second cache partition crossed a lower threshold.

iii. Shih teaches two cache partitions [i.e., demand and prefetch partitions] wherein the size of each partition is dynamically reallocated based on behavior [i.e., the cache hit density] of both partitions [col. 4, lines 55 through col. 5, line 15].

iv. Arlitt teaches a plurality of cache partitions each of which is exclusive assigned to a type of data object. The size of each cache partition is dynamically reallocated based on the access frequencies of at least two cache partitions, wherein the storage areas that are very busy in caching object to use more space that is allocated to the other inactive storage areas [col. 4, lines 28-46].

v. Furthermore, setting a predetermined threshold [either upper or lower threshold] has also been known in the pertinent art for controlling of which cache partition should be gained more memory space and/or which partition should give up some of its memory space.

vi. One having ordinary skill in the art, who is familiar with cache partitioning, looks at the references of Blumrich and Shih or Arlitt, would further incorporate logic into the cache system of Blumrich to increase or decrease the size of a cache partition based on the behavior [e.g., hit density as taught by Shih or the active or inactive as taught by Arlitt] of a least two of the cache partitions, if such feature is not inherent in the Blumrich cache system. This is because Blumrich cache partitions are also dynamically resized and/or reallocated based on access frequency [i.e., hit count] as recognized by the applicant. One having ordinary skill in the art would readily recognize that the Blumrich cache has a fixed size. Obviously, when the size of a cache partition is increased, at least one or more partitions of the Blumrich cache partitions have to give up at

least a portion or all of its/their own memory space. Furthermore, one having ordinary skill in the art would readily recognize that when reallocating a cache partition is based on access frequency, the cache partition or partitions that have less access frequency would be selected to give up a portion or all of their memory space for the partition that has a higher access frequency.

vii. Accordingly, it would have been obvious to one having ordinary skill in the art at that time the invention was made to further include logic into the Blumrich cache system for reallocating a size of the first cache partition if the characteristic of the first cache partition crosses an upper threshold and the characteristic of the second cache partition crossed a lower threshold, if such feature is not already inherent in the Blumrich system.

b. As per claim 2: Arlitt further teaches that the reallocating the size of the first cache partition based on the characteristics of at least three or more cache partitions [see col. 4, lines 28-46]. Accordingly, it would have been obvious to one having ordinary skill in the art to include logic into the Blumrich system for reallocating the size of the first cache partition based on the characteristics of at least three or more cache partitions, as taught by Arlitt.

c. As per claims 3 and 4: the further claimed limitations would follow necessarily when the teaching of Shih is incorporated into the teaching of Blumrich in the manner as described in the rejection of claim 1. This is because in Shih, the memory space assigned to each partition is based on hit density of each partition.

d. As per claims 5 and 6: similarly to claim 3 and 4, the further claimed limitations would follows necessarily when the teaching of either Shih or Arlitt is incorporated into the teaching of Blumrich in the manner as described in the rejection of claim 1. This is because both Arlitt and Shih teach that the more

active cache partition get more memory space while the inactive cache partition space is reduced.

e. As per claims 7-18: the claimed partitioned cache or cache-based system basically encompasses the means for carrying out the steps of claims 1-6. Accordingly, claims 7-18, are rejected for the same reasons as set forth for that in claims 1-6.

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hiep T Nguyen whose telephone number is (703) 305-3822. The examiner can normally be reached on Monday-Friday from 9:30 a.m. to 6:00 p.m.
5. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Sparks can be reached on (703) 308-1756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.
6. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hiep T Nguyen
Primary Examiner
Art Unit 2187

HTN